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Value Addition to Organically Produced Naturally-Coloured Cotton under Contract Farming

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The Agricultural Research Station of the University of Agricultural Sciences, Dharwad, Karnataka, has released a naturally-coloured cotton variety, DDCC – 1. To popularize this variety, its large scale cultivation in Uppinabetageri village of the Dharwad district was arranged under contract farming system in collaboration with Khadi Nekar Sahakari Utpadak Sangha, Niyamita, which buys back cotton of the contract farmers and processes it into garments for marketing. This study has analysed the value addition to naturally-coloured cotton at different stages of processing. It has been found that during ginning one quintal of colour cotton yielded 35 kg lint, 64 kg seed and 1 kg of waste. This lint underwent spinning process and yielded 29.69 kg yarn and 5.31 kg waste. The yarn underwent the weaving process and yielded 28.96 kg cloth and 0.98 kg. waste. The 29.96 kg cloth has been found equivalent to 106.28 metres of cloth. While preparing (cuttings) shirts, 1.28 m of waste material was obtained. Finally, 42 shirts were made from 105 m of cloth. The study has found that an additional value of Rs 5,875 was generated through processing *kapas* into cotton garments (shirts). Its break-up at different levels of processing has been recorded as follows: ginning, Rs 327 (5.57%); spinning, Rs 781 (13.30%); weaving, Rs 1626 (27.68%); and garments manufacturing, Rs 3140 (53.45%).

Introduction

Agricultural Research Station, Dharwad under the jurisdiction of the University of Agricultural Sciences, Dharwad, Karnataka has been working on the improvement and development of naturally-coloured cotton since 1995-96. Considering the advantages of colour cotton, efforts are being intensified to popularize this variety (DDCC-1) for cultivation on a commercial scale. As a step in this direction, it has arranged its cultivation on a large

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scale in Upinabetageri village under the contract farming system, in collaboration with the Khadi Nekar Sahakari Utpadak Sangh Niyamit (KNSUSN), Uppinabetageri since 2002. The Sangh buys back the colour cotton grown by the contract farmers, processes it and manufactures garments from it. These garments are marketed by the Sangh itself.

With this backdrop, the present study was undertaken to analyze the cultivation of naturally-coloured cotton under contract farming system, cultivated using organic inputs (organic farming) and to estimate the value-addition to it during different stages of processing.

Methodology

From the Uppinbetageri village of Dharwad taluk, all the 80 farmers cultivating naturally-coloured cotton under contract farming were chosen purposively for the study. Contract had earlier been made between the University of Agricultural Sciences, Dharwad and Khadi Nekar Sahakari Utpadak Sangha Niyamit, Uppinbetageri. In the selected village, 57 processing units comprising one ginning unit, 11 spinning units, 45 weaving units and one garment unit were selected for the study. The data pertaining to the year 2005-06 were analyzed by calculating averages, percentages, etc. to obtain the meaningful results.

Results and Discussion

Value Addition to Naturally-Coloured Cotton during Different Stages of Processing

The processing of colour cotton is undertaken for value addition to its products. It is done at four different stages of processing, viz. ginning, spinning, weaving and garment manufacturing. The end product in cotton processing is cloth, which is also one of the needs of man.

Value-addition to Cotton during Ginning Process

Cost of Processing of Cotton to Lint

The per unit cost of processing of cotton to lint (ginning process) has been presented in Table 1. On an average, the total cost incurred in the processing of cotton to lint worked out to be Rs 2429/q of cotton, in which the total variable cost (Rs 2417/q) formed a substantial component (99.52%). The total fixed cost being Rs 12/q, accounted for only 0.48 per cent of the total cost of processing.

Table 1. Cost on processing of cotton to garment manufacturing

Sl No.	Particulars	Cost, Rs/q			
		Cotton to lint	Lint to yarn	Yarn to cloth	Cloth to garment
A.	**Fixed cost**				
1.	**Depreciation**				
a.	Building	1.00 (0.04)	22.00 (0.26)	19.00 (0.11)	18.00 (0.06)
b.	Equipment	3.00 (0.12)	78.00 (0.92)	79.00 (0.46)	78.40 (0.25)
2.	Salaries of permanent staff	4.50 (0.19)	182.00 (2.15)	290.00 (1.69)	272.00 (0.87)
3.	Licence fee	0.70 (0.03)	0.70 (0.01)	6.00 (0.03)	4.40 (0.01)
4.	Insurance	1.50 (0.06)	20.00 (0.24)	70.00 (0.41)	62.00 (0.19)
5.	Corporation tax	-	7.00 (0.08)	-	-
6.	Interest on fixed capital	1.00 (0.04)	29.00 (0.34)	35.00 (0.20)	41.30 (0.13)
	Total fixed cost	**11.70 (0.48)**	**338.70 (3.99)**	**499.00 (2.90)**	**476.10 (1.53)**
B.	**Variable cost**				
1.	Cost of raw material	2250 (92.62)	5500 (64.85)	12500 (72.73)	23170 (74.15)
2.	Electricity charges	10.00 (0.41)	998.70 (11.78)	83.30 (0.48)	83.00 (0.27)
3.	Repairs and maintenance	2.00 (0.08)	36.00 (0.42)	486.00 (2.83)	491.20 (1.57)
4.	Office maintenance	0.20 (0.01)	157.50 (1.86)	39.00 (0.23)	41.00 (0.13)
5.	Wages to casual labour	9.00 (0.37)	646.30 (7.62)	2253.50 (13.11)	2318.50 (7.42)
6.	Telephone charges	0.30 (0.01)	29.40 (0.35)	18.00 (0.10)	21.00 (0.07)
7.	Packing material /Stores and spares	-	119.00 (1.40)	-	-
8.	Selling and distribution	-	17.00 (0.20)	-	-
9.	Interest on working capital	146 (6.01)	638 (7.52)	1307 (7.61)	2411 (7.72)
	Total variable cost	**2417**	**8141**	**16687**	**28536**
C.	**Marketing cost**	**-**	**-**	**-**	**2235 (7.15)**
	Total processing cost (A+B+C)	**2429** (100.00)	**8480** (100.00)	**17186** (100.00)	**31246** (100.00)

Note: Values within the parentheses indicate percentages

Of the total variable cost, the cost of raw material (Rs 2250/q) accounted for 92.61 per cent, followed by interest on working capital (6.01%) and electricity charges (0.41%). In the total fixed cost (Rs 12/q), salaries to permanent staff (0.19%) was the major component, followed by depreciation on building and equipment (0.16%), the interest on fixed capital, insurance, license fee together accounting for 0.83 per cent.

Returns from Processing of Cotton to Lint

The returns from processing of colour cotton to lint have been recorded in Table 2. It is found that the processing of one quintal of cotton resulted in 35 kg of lint, 64 kg of seed and one kg of waste. The sale prices of lint was Rs 55/kg and of seeds Rs 13 / kg.

The gross returns from ginning one quintal of cotton were Rs 2757, of which the returns from main product (lint) were Rs 1925 and by product (seed) were Rs 832. The value addition to the product in the process was of Rs 507/q. The net value added as a result of processing of cotton to lint was Rs 327/q of cotton processed.

Value Addition to Lint in Spinning Process

Cost on Processing of Lint to Yarn

The cost on processing of lint to yarn (spinning process), presented in Table 1, revealed that the average total cost to be Rs 8481/q, in which the total variable cost was Rs 8142/q (96.01%) and the total fixed cost was Rs 339/q (3.99%). Of the variable cost, the cost of raw material (Rs 5500/q) accounted for 64.85 per cent, followed by electricity charges (11.78%) and interest on working capital (7.52%). The cost on wages to casual labour, selling and distribution, packing material/storage and spares, office maintenance, machine repairs and maintenance, telephone charges together accounted for 9.89 per cent of the total cost of processing.

In the total fixed cost (Rs 339/q), salary to permanent staff was (Rs 82; 15%) the major component. The depreciation on building and equipment, interest on fixed capital, insurance, corporation tax, license fee, together accounted for 1.61 per cent of the per quintal total cost of processing of lint to yarn.

Returns from Processing of Lint to Yarn

The returns from processing of colour lint to yarn have been presented in Table 2. The processing of one quintal of lint on an average yielded 84.80 kg of yarn and 15.20 kg of waste material. The sale prices of yarn was Rs

Table 2. Returns in processing of cotton to garment manufacturing (Rs/q)

Particulars	Cotton to lint	Lint to yarn	Yarn to cloth	Cloth to garment
Returns from main product	1925	10600	22474	41760
Returns from by-product	832	110	61	50
Gross returns	2757	10762	22536	41810
Raw material cost	2250	5500	12500	23170
Value addition	507	5262	10036	18640
Processing cost	179	2981	4684	8076
Net value addition	327	2281	5351	10563
Returns from packing material sold	-	52	-	-

125/kg and of waste materials Rs 7.25/kg. The gross returns from processing (spinning) of one quintal of lint were Rs 10,762, which were mainly from yarn (Rs 10,600). The value addition in the process was of Rs 5,262. The net value added as a result of processing of lint to yarn was of Rs 2,281/q of lint processed.

Value Addition to Yarn in Weaving Process

Cost on Processing of Yarn to Cloth

The costs on processing of yarn to cloth (weaving process), presented in Table 1, revealed that the average total cost on processing of one quintal of yarn to cloth worked out to be Rs 17,184, in which the total variable cost (Rs 16,687) formed the major (97.10%) component. The fixed cost being Rs 499/q accounted for only 2.90 per cent of the total cost of processing.

In the total variable cost, the cost of raw material was maximum, Rs 12,500/q (72.73%), followed by wages to causal labour (13.11%) and interest on working capital (7.61%). The repairs and maintenance, electricity charges, office maintenance, telephone charges, etc. together accounted for the remaining 3.65 per cent of the total cost of processing.

In the total fixed cost (Rs 499/q), salary to permanent staff (Rs 290) was found to be the major component (1.69%). Depreciation on building and equipment, interest on fixed capital, insurance, license fee together accounted for 1.21 per cent of the total processing cost.

Returns from Processing of Yarn to Cloth

The study on gross returns from processing of yarn to cloth, presented in Table 2, revealed that on processing of one quintal of yarn, 97 per cent (97 kg) final product (cloth) and three per cent (3 kg) waste material were

obtained. One kg of yarn yielded on an average 3.67 metres cloth and a total of 355.99 metres cloth was obtained. The sale price of cloth and wastage materials were Rs 231.70 and Rs 25.50, respectively.

The gross returns obtained from processing of one quintal of yarn (weaving process) were Rs 22,536, which were contributed by cloth (Rs 22,475) and waste material (Rs 61). The value addition in the process was of Rs 10. The net value added as a result of processing of yarn to cloth was Rs 5,351/q of yarn processed.

Value Addition to Cloth in Garment Manufacturing Process

Cost on Processing of Cloth to Garment (Shirt)

The costs on processing of cloth to garment (shirt) have been presented in Table 1. The average total cost on processing of one quintal of cloth to garment worked out to be Rs 31,246 of which the total variable cost (Rs 28,536) formed the major component (91.32%). The fixed cost being Rs 476/q, accounted for only 1.53 per cent of the total cost on processing.

In the total variable cost, the cost of raw material was maximum, Rs 23,170/q, (74.15%), followed by interest on working capital (7.72%) and wages to casual labour (7.42%). The marketing cost accounted for 7.15 per cent of the total processing cost. In the total fixed cost (Rs 476/q), salary to permanent staff (Rs 272) was found to be the major component.

Returns from Processing of Cloth to Garments Manufacture (Shirt)

The gross returns obtained and value added in processing of one quintal of cloth to garments have been presented in Table 2. It was found that a major portion of cloth was used exclusively for making of full shirts. While making shirts, 7 m of cloth was wasted (2 kg). The sale price of wastage was Rs 25/kg. One shirt required 2.5 m cloth and 144 shirts were prepared from 360 m cloth.

The gross returns from the final product were of Rs 41,810, which were contributed by the sale of 144 shirts at the rate of Rs 290 per shirt (Rs 41,760) and waste material (Rs 50).The value addition in the process was of Rs 18,640. The net value added as a result of processing of cloth to garment was of Rs 10,563.

Total Value Addition to Naturally-Coloured Cotton

The colour cotton underwent processing in four stages, viz. ginning, spinning, weaving and garment manufacturing to reach the end users. In

Table 3. Total net value addition to one quintal of naturally-coloured cotton by processing

Stages of processing	Quantity obtained (kg)	Net value addition (Rs)	Per cent
Ginning	35 kg lint from 1 quintal cotton	327	5.57
Spinning	29.69 kg yarn from 35 kg of lint	781	13.30
Weaving	106 m cloth from 29.69 kg yarn	1626	27.68
Garments (Shirt)	42 shirt from 106 m cloth	3140	53.45
Total net value addition to naturally-coloured cotton		**5875**	**100.00**

the ginning process, one quintal of naturally-coloured cotton yielded 35 kg lint, 64 kg seed and 1 kg waste. The 35 kg of lint underwent further processing in spinning process and yielded 29.69 kg yarn and 5.31 kg waste. The 29.69 kg yarn underwent further processing in the weaving process and yielded 28.96 kg of cloth and 0.73 kg as waste. The 28.96 kg cloth is equivalent to 106 m of cloth. Finally, 42 shirts were made from 106 m of cloth and 1.28 m of cloth was obtained as waste. The total value addition to one quintal of naturally-coloured cotton by processing has been depicted in Table 3. The results have indicated that an additional value to the extent of Rs 5875 was created in the course of processing cotton into cotton textile. The break up of the same at different levels of processing was: ginning, Rs 327 (5.57%); spinning, Rs 781 (13.30%); weaving, Rs 1626 (27.68%); and garment making, Rs 3140 (53.45%).

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